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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,494

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Andrew C. Lewin

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NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER

LEE, PATRICK J

ART UNIT

PAPER NUMBER

2878

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/534,494

Applicant(s)

LEWIN ET AL.

Examiner

Patrick J. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to amendment filed December 29, 2006.

### ***Drawings***

2. The drawings were received on December 29, 2006. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 & 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,726,443 to Immega et al in view of US 2002/0008055 A1 to Campbell et al.

With respect to claim 1, Immega et al disclose a device comprising: light source (12, 33, 35, 41, 59) as an illumination means for illuminating a scene with an array of spots of light; sensor (1, 51) as a detector arranged to receive light reflected from objects (24, 6, 7) as a scene; and mask (3) as a mask with both transmissive and non-transmissive portions. Immega et al illustrates the mask arranged such that light within a first range of distances from sensor (1) is transmitted through the mask (3), while light that would not be transmitted through mask (3) would be within a second range of distances. However, Immega et al does not explicitly disclose the use of an illumination means with a light source arranged to illuminate the input face of a light guide.

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Campbell et al disclose such an illumination means by disclosing an illumination source (90) comprising: HID lamp (92) as a light source arranged to illuminate reflector (94) as part of an input face of a light guide. Campbell et al also disclose bottom cap (98) with soda straw collimator (100) as a tube with substantially reflective sides and window (104) as a projection optic in order to project an array of distinct images of the light source towards the scene (see Campbell et al figure 8). To modify the teachings of Immega et al with those of Campbell et al would have been obvious to one of ordinary skill in the art because such would improve the light produced by preventing any shadowing effects (see Campbell et al paragraph [0047]) that would prove to be detrimental to the detected signal.

With respect to claim 2, the modified Immega et al does not explicitly disclose that the reflected light would be transmitted to the detector if the target is within a predetermined distance of sensor and reflected light is not transmitted if the target is outside that predetermined distance, but such is illustrated in figure 1, where more of the surface of object (7) is imaged in comparison in comparison to object (6). However, such would still be obvious to one of ordinary skill in the art because if an object is at a location so far from sensor (1), it is more likely that the light reflected would not be within an appropriate range of angles of sensor (1).

With respect to claim 3, the modified Immega et al does not explicitly disclose the mask transmitting light reflected from a target more than a predetermined distance away and not transmit light from within the predetermined distance, but such would have been obvious to one of ordinary skill in the art because the location of the object (7) too close

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to the mask (3) could lead to light from sources (12, 33, 35, 41, 59) striking object (7) at such a sharp angle that most of the reflected light is incident on the opaque portions (71) of mask (3) or misses the mask (3) altogether.

With respect to claim 4, the modified Immega et al disclose the use of infrared sources (see Immega et al column 14, lines 48-52; column 15, lines 23-27).

With respect to claim 5, the modified Immega et al disclose color filters (15) applied to detectors (1), such that only light of a predetermined frequency or wavelength would impinge detector (1), but the modified Immega does not explicitly disclose the modulation of illumination means (12, 33, 35, 41, 59) and the modulation of a detector with a filter. However, such would have been obvious to one of ordinary skill in the art because such would allow the device to monitor what is being emitted by the illumination means and prevent erroneous detection of ambient radiation by the detector. Such modifications would harmonize the operation of the different elements of the device.

With respect to claim 6, the receiving of ambient light is not explicitly disclosed, but correction for such radiation would be obvious to one of ordinary skill in the art because ambient radiation can adversely affect the operation of the device by leading to false detections.

With respect to claim 7, while the modified Immega et al does not explicitly disclose the mask (3) transmitting a different amount of reflected light in each distance range, the modified Immega et al does disclose the range of the device (see column 18, lines 42-63). However, such would be inherent from the device due to the length and

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width of the holes within mask (3) because if an object is located too far away, there will only be a small window in which the reflected light can fit such that the reflected light is incident on detector (1), while if the object is closer, there will be a greater window and thus a higher possibility that a greater amount of light would be incident on detector (1).

With respect to claim 8, the modified Immega et al disclose color filters (15) applied to detectors (1), such that only light of a predetermined frequency or wavelength would impinge detector (1), but the modified Immega does not explicitly disclose the modulation of illumination means (12, 33, 35, 41, 59). However, such would have been obvious to one of ordinary skill in the art because such would allow the device to monitor what is being emitted by the illumination means and prevent erroneous detection of ambient radiation.

With respect to claim 9, the modified Immega et al disclose mask (3) to have holes as transmissive windows and a substantially occluding portion as a substantially non-transmitting material. Such characteristics of the mask are illustrated in Immega et al Figure 20 with opaque regions (71) as the substantially non-transmitting material.

With respect to claim 11, the modified Immega et al illustrate the light guide to comprise a tube with a square cross section.

With respect to claim 12, while the modified Immega et al does not explicitly disclose the use of a hollow tube with reflective internal surfaces, such would have been obvious to one of ordinary skill in the art because such would allow the disposition of a plurality of light emitting sources.

With respect to claim 13, the modified Immega et al illustrates the tube to comprise solid material such that a substantial amount of light incident at interface undergoes total internal reflection through optical pathway (80).

With respect to claims 14-15, the use of LEDs is not explicitly disclosed, but such would have been obvious to one of ordinary skill in the art because LEDs provide the necessary illumination at a relatively reasonable cost.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-9 & 11-15 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick J. Lee  
Examiner  
Art Unit 2878

PJL  
February 1, 2007

  
Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800